DOCUMENT RESUME

ED 137 234 SP 010 871

AUTHOR Bush, Andrew J.; And Others
TITLE An Empirical Investigation of Teacher Clarity.
PUB DATE Apr 77
NOTE 20p.; Paper presented at Annual Meeting of American Educational Research Association (New York, New York, April 4-8, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Catholic Schools; *Classroom Communication; Data Analysis; Educational Research; Junior High School Students; *Secondary School Teachers; *Student Evaluation of Teacher Performance; *Teacher Behavior; Teacher Education; *Teaching Methods
IDENTIFIERS *Instructional Clarity

ABSTRACT

In an attempt to investigate and define the "clarity of presentation" complex of teacher behaviors and to relate them to a number of presage and context variables, four instruments consisting of selected low inference behaviors were administered to four groups of ninth-grade students for rating the behaviors of their most clear and least clear teachers. The resulting data sets were factor analyzed to a principal axis, varimax rotated solution with resultant factors somewhat consistent across forms and highly consistent across clarity levels for each form. The data suggests that teacher clarity consists of a general dimension involving explaining concepts in an understandable manner, at an appropriate pace, involving use of examples and illustrations in presenting material. Practical implications appear in several areas: (1) junior high school teachers who wish to be judged as clear teachers should use clarifying techniques in their teaching methods; (2) teacher educators who wish to train clear teachers should stress the practice and frequent use of understandable presentations, appropriate pace, and use of examples; (3) researchers might well find similar success in identifying and defining other high inference constructs (e.g., teacher variability, enthusiasm, task-oriented behavior, etc.) by using similar methods. (MB)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED137234

An Empirical Investigation of Teacher Clarity

Andrew J. Bush

Memphis State University

John J. Kennedy and Donald R. Cruickshank

The Ohio State University

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Running head: Teacher Clarity

SP 010 871

An Empirical Investigation of Teacher Clarity

In one of the most comprehensive reviews of teacher effects research, Rosenshine and Furst (1) synthesized the results of approximately fifty studies which, for the most part, correlated teacher process variables with gain in student achievement. The synthesis produced eleven catagories of teacher behaviors that were apparently related to student achievement. The category which enjoyed the strongest research support was labeled "clarity of presentation."

Unfortunately, the clarity of presentation complex, more commonly called teacher clarity, is plagued with problems of ambiguity and impreciseness of definition. As Rosenshine noted in another review (2), "Although there is strong support for the validity of clarity as a high-inference variable, its low-inference version is difficulty to evaluate because only one study (3) used a low-inference measure of this variable."

By considering the most commonly used definition of teacher clarity, "being clear and easy to understand," the difficulties encountered in evaluating this construct can be readily appreciated. Not only is the common definition circular but, as stated, clarity cannot be directly observed or easily measured. Relative to the measurement of clarity, all that an observer can do is offer an impression of the extent to which a teacher is "clear" rather than being able to provide a record of occurrence of agreed-upon clear behavior. And since behaviors that demand impressionistic rating procedures--termed high-inference behaviors--are by nature ambiguous they are difficult to work with in a research context and notoriously weak for developmental

and training purposes. Research and training problems caused by the use of ambiguous concepts have been recently discussed in detail by Dunkin (4).

It has been suggested that one potentially profitable method of overcoming the inherent problems associated with the use of high-inference variables is to empirically identify their lower-inference constituents, i.e., behaviors that are more amenable to direct observation and tallying (5). To the extent to which lower-inference constituents can be identified, the potential for conducting definitive research on important educational variables is increased.

The major purpose of this research was to investigate and define the construct of teacher clarity in terms of observable teacher behaviors. A second purpose was to relate these behaviors to a number of selected presage and context variables. Specific objectives were:

1. To determine the intermediate dimensions (factor structure) that underlie a set of 110 teacher behaviors that were used in this research. The 110 behaviors in question were obtained from over 1000 junior high school students by Cruickshank and Myers (6) in an earlier attempt to map the teacher clarity concept.

2. To determine whether or not and in what fashion specific members of the Cruickshank-Myers behavior set discriminate between most clear and most unclear junior high school teachers.

3. To relate specific members of the set (i.e., low-inference teacher behaviors) that are found to discriminate between clear and unclear teachers to the intermediate dimensions (factors) uncovered as a result of pursuing the first objective.

4. To explore multivariate relationships between the set of clarity behaviors and selected presage and context variables.

Method

This research began with a preliminary set of 110 relatively low-inference teacher behaviors compiled by Cruickshank and Myers (6). Briefly, these investigators presented an open-ended questionnaire to 1009 junior high school students attending public schools in Columbus, Ohio. The questionnaire asked students to list approximately five behaviors performed by their clearest teacher. Analysis and editing of student responses resulted in the set of 110 teacher behaviors that appeared to constitute a rough mapping of the clarity domain based on student perceptions.

Instrument development. The instruments used in the present study contained the behaviors compiled by Cruickshank and Myers. The 110 behaviors were split in half randomly and two random orderings of behaviors were made for each half. These procedures produced two different forms (Forms A and B), each containing 55 different behaviors, with two random orderings of each form. Finally, two distinct versions of each of the four forms were created. The first version requested students to think of their most clear teacher and to respond to each of the listed behaviors in terms of the frequency--on a five-point scale--with which that clear teacher performed the behavior. The second version requested students to think of their most unclear teacher and also instructed them to report the frequency with which their unclear teacher performed each of the behaviors. In sum, there were eight versions of the instrument: two distinct forms (A and B); two clarity levels of each

form requiring the selection of either the most clear or least clear target teacher, and two random orderings of each of the aforementioned versions.

Sample and administration. Instruments were administered to 1549 ninth grade students attending nine Catholic high schools in the Diocese of Cleveland, Ohio. This number (1549) represented 87% of the total number of ninth grade students enrolled in parochial high schools in the greater Cleveland area during the 1975-76 school year.

Most participating students were Catholic (91%), caucasian (88%), and members of lower-middle or middle class families (median family income ≈ $11,000). Approximately two-thirds of the teaching personnel in these schools were lay teachers.

All available ninth grade students were assembled in one location within each of the nine schools where the administration of instruments was conducted by the assistant superintendent for secondary education. Versions of the instrument were distributed in a systematic random fashion thus assuring that approximately one half of the students responded to the behaviors in terms of their most clear teacher and one half in terms of their most unclear teacher.

In addition to responding to the behaviors, students reported their age, sex composition of their school, and a number indicating the median family income of the census region in which they lived. They also reported several characteristics of their target teacher, including sex, estimated age, and whether or not the target teacher was a member of the clergy.

The nine administrations produced 1510 response sheets which were complete enough to be subjected to analysis.

Results

To determine the factors underlying the Cruickshank-Myers behaviors (objective 1), student responses to the behaviors were pooled across alternate orderings of instruments for each clarity level. The four resultant data sets were factor analyzed to a principal axis, varimax rotated solution. In all four cases, five factors emerged that accounted for approximately 80% of the common variance and more than 30% of the total variance. Moreover, the resultant factors were somewhat consistent across forms and highly consistent across clarity levels for each form.

The factors of Form A for clear target teachers (N=385), in decreasing order of strength, as reflected by the number of sizable loadings and variance explained, were tentatively labeled:

1. Explaining: explaining through written or verbal examples.
2. Individualizing: personalizing using multiple strategies.
3. Task orientation - inflexible style.
4. Verbal Fluency.
5. Organizing student work.

The factors of Form A for unclear target teachers (N=376) yielded similar results with these exceptions: (a) Factors 2 and 4 exchanged positions and (b) Factor 3 was replaced by "Providing for and/or Assuring Student Understanding." In both cases, the first factor overshadowed the rest by accounting for approximately 50% of common variance and exhibiting almost thirty substantial behavior loadings. Behaviors that loaded most prominently on the resultant factors associated with Form A are presented in Table 1.

Insert Table 1 about here

Reported in the same fashion, the factors of Form B for most clear teachers (N=379) were:

1. Explaining: providing for student understanding.
2. Explaining: explaining through written or verbal example
3. Synthesis and/or relevancy.
4. Verbal repetititon.
5. Uninterpretable.

For most unclear teachers (N=370), the first three factors were similar to those just cited but the fourth, labeled "Verbal Fluency", and the fifth, an uninterpretable factor, differed as can be seen by an examination of Table 2. Again, the first factor for each clarity level dominated.

Insert Table 2 about here

To determine which specific behaviors discriminated between perceived clear and unclear teachers (objective 2), responses to Forms A and B were subjected to discriminant analyses. The two levels of clarity (clear vs unclear) served as dichotomous criterion variable. To enhance generalizability, the analysis was performed separately on each ordering associated with each of the two forms. In all four cases, where the N ranged from 370 to 381, the function significantly discriminated between the two clarity levels ($R > .55$; $p < .01$).[1] The specific behaviors on each form which may be said to discriminate between clear and unclear targeted teachers "best" are those presented in Tables 1 and 2 with the highest structure coefficients across both

orderings (i.e., the highest correlations between discriminant scores and the original variables).

With respect to Form A, for example, some of the low-inference behaviors that students see frequently performed by their most clear teachers but infrequently performed by their least clear teacher are: (a) gives the student individual help, (b) explains something and then stops so students can think about it, (c) explains the work to be done and how to do it, (d) repeats questions and explanations if students don't understand them, (e) asks the student before he starts to work if he knows what to do and how to do it. Similarly, some of the better discriminators found on both orderings of Form B appear to be: (a) gives explanations that the students understand, (b) teaches at a pace appropriate to the topic and the student, (c) takes time when explaining, (d) answers student questions, and (e) stresses difficult points.

When specific behaviors that were shown to discriminate were related to the previously established factor structure (objective 3), a most interesting, consistent, and important pattern of results was observed. Specifically, for both orderings of Form A, the discriminating behaviors were found to load primarily on Factor 1 (Explaining: explaining through written or verbal examples). With respect to the orderings of Form B, the discriminating behaviors belonged primarily to either Factor 1 (Explaining: providing for student understanding) or Factor 2 (Explaining: explaining through written or verbal examples). These observations suggest that the significant intermediate dimensions of teacher clarity pertain to the teacher acts of: (a) explaining ideas and directions and (b) using ample illustrations during the process of explaining ideas and directions.

Finally, to explore possible multivariate relationships between the set of Cruickshank-Myers behaviors and selected demographic variables (objective 4), four separate canonical analyses were performed. Each of the four analyses used one of the clarity-level versions of the two forms as predictors and a demographic set of criteria. Each of the four analyses discovered several statistically significant canonical relationships. However, in all four cases, only the first canonical variate was linked to a substantial number of clarity behaviors. For each of these principal canonical variates, the predictor dimension was highly congruent with the corresponding discriminant dimension. On the demographic side of the equations, the dichotomous teacher clarity variable dominated but teacher age, and less consistently, teacher sex and student sex also appeared. In short, the discriminating behaviors were not only relevant to clarity but also, somewhat surprisingly, to estimated teacher age (younger teachers tended to be perceived as more clear), teacher sex, and student sex, although these non-clarity variables assumed a secondary role.

Discussion

It appears that teacher clarity, at least as perceived by junior high students, is a meaningful, distinguishable, and potentially operational construct. This research suggests that clarity can be defined in terms of observable components. For example, at an intermedite level, teacher clarity appears to be multidimensional. Specifically, it appears to consist of a rather general dimension which involves explaining concepts and directions in a manner which is understandable and at a pace which is appropriate (e.g., see Factor I of Form B) and a second dimension wich pertains more specially to

teacher use of examples and illustrations in presenting material (e.g., see Factor 2 of Form B).

Some representative lower-inference examples of the former dimension are: (a) takes time when explaining, (b) stresses difficult points, and (c) explains new words. Examples of the latter dimension are: (a) gives an example on the board of how to do something, (b) works difficult homework problems, selected by students, on the board, and (c) gives students an example and then lets them try to do it. The more frequently a teacher is thought to perform these behaviors, the better the chance that the teacher will be perceived as a clear teacher by students.

The results also appear to have practical implications in two contexts. First, if a junior high school teacher wishes to be perceived by students as a clear teacher, he or she would likely do well to employ frequently those lower-inference clarity behaviors, or similar behaviors, shown by this study to be related to clear teaching. Secondly, if teacher educators desire to train teachers to be perceived as clear, an argument could be advanced for the incorporation of discriminating (clarity) behaviors into pre-service education courses in such a manner as to encourage their practice.

The implications of these findings, however, are more obvious for the conduct of future research. In light of the initial success met here in defining the abstract teacher behavior, clarity, it appears likely that attempts to define other potentially important teacher-behavior variables (e.g., teacher variability, enthusiasm, task-oriented behavior, etc.) in a similar fashion could be successful. Because the behaviors that have been identifed as promising are high-inference constructs, this kind of research is critical.

The success met here also justifies a more comprehensive study of the teacher-clarity construct. Since other constituents of teacher clarity may exist, it would seem appropriate first to either replicate the earlier Cruickshank-Myers domain mapping or attempt to augment the present clarity mapping with highly operational, low-inference constituents that appear to be promising. The refined mapping then should be subjected to procedures similar to those described herein. It is most important that the factor analysis of low-inference clarity behaviors be independently replicated. This is because factor structures based on the analyses of interitem correlational matrices which are generally loaded with measurement error tend to be unstable. Finally, causal investigations need to be designed and conducted which assess the impact of teacher clarity, as measured by a combination of refined low-inference constituents, on identified student outcomes. Eventually, such an approach should either document the fact that certain teacher clarity behaviors do have an effect on gain in student achievement or rule out teacher clarity as the most promising correlate of student gain.

References

1. B. Rosenshine, and N. F. Furst, "Research in Teacher Performance," in Research in Teacher Education: A Symposium, ed., B. O. Smith (Englewood Cliffs, N. J.: Prentice-Hall, 1971).

2. B. Rosenshine, Teaching Behaviors and Student Achievement (London: National Foundation for Educational Research in England and Wales, 1971).

3. D. Solomon, W. E. Bezdek, and L. Rosenberg, Teaching Styles and Learning (Chicago: Center for the Study of Liberal Education for Adults, 1963). (ERIC ED: 026-556)

4. M. J. Dunkin, "Problems in the Accumulation of Process-Product Evidence in Classroom Research," British Journal of Teacher Education 2 (1976):177-179.

5. J. J. Kennedy, and A. J. Bush, "Overcoming Some Impediments to the Study of Teacher Effectiveness," Journal of Teacher Education 27 (1976):14-17.

6. D. R. Cruickshank, and B. Myers, "Statements of Clear Teachers Provided by 1009 Students in Grades 6-9," (Columbus, Ohio: College of Education, Ohio State University, 1975). (ditto)

Footnote

[1]Following construction of the discriminant functions, classification equations based on those functions were created and used to judge whether students were describing their most clear or most unclear teacher given knowledge of their responses to the clarity behaviors. Each of the classification procedures was cross-validated. For primary classification, hit-trial ratios were consistently in the high .70's. These results lend support to the finding that student responses to these behaviors can be used to distinguish between teachers that students perceive to be clear or unclear.

TABLE 1

FACTOR STRUCTURE AND STRUCTURE COEFFICIENTS

OF SELECTED BEHAVIORS ON FORM A

FACTOR I - CLEAR TARGET.: EXPLAINING THROUGH WRITTEN OR VERBAL EXAMPLES
FACTOR I - UNCLEAR TARGET: EXPLAINING THROUGH WRITTEN OR VERBAL EXAMPLES

BEHAVIORS[a]	FACTOR LOADINGS		STRUCTURE COEFFICIENTS	
	CLEAR	UNCLEAR		
GIVES EXAMPLES AND EXPLAINS THEM	.74	.76	.23[b]	.31[c]
EXPLAINS THE WORK TO BE DONE AND HOW TO DO IT	.67	.67	.27	.33
GIVES WRITTEN EXAMPLES	.59	.54	.27	.29
USES COMMON EXAMPLES	.58	.52	.23	.29
TEACHES STEP BY STEP	.58	.49	.26	.31
REPEATS QUESTIONS AND EXPLANATIONS IF STUDENTS DON'T UNDERSTAND THEM	.57	.62	.33	.26
EXPLAINS IN DETAIL WHAT WILL BE ON A TEST	.56	.58		.36
TELLS AND SHOWS STUDENTS WHAT THEY SHOULD DO	.55	.59	.23	.37
STAYS WITH THE TOPIC UNTIL IT IS UNDERSTOOD	.55	.53	.30	.26
PROVIDES ADDITIONAL INFORMATION BESIDES WHAT IS IN THE BOOK	.54	.55	.27	.31
USES EXAMPLES WHEN EXPLAINING	.54	.52		.30
WRITES ON THE BOARD AND EXPLAINS AS HE WRITES	.54	.52		.25
EXPLAINS THE ANSWERS TO QUESTIONS	.53	.69		.33
LETS STUDENTS ASK QUESTIONS	.52	.61	.29	.27
GOES OVER ALL WORK IN TESTS WITH STUDENTS	.52	.54	.20	.20
EXPLAINS ORALLY AND IN WRITING	.52	.49	.23	.28
STANDS SO THAT EVERYONE CAN SEE WHAT HE WRITES ON THE BOARD	.50	.42	.23	.25
PRONOUNCES WORDS DISTINCTLY	.50			.27
SUPPORTS THE LESSON WITH SPECIFIC DETAILS	.46	.53	.30	.31
ASKS THE STUDENT BEFORE HE START TO WORK IF HE KNOWS WHAT TO DO AND HOW TO DO IT	.46	.47	.29	.30
WRITES LEGIBLY ON THE BOARD	.46	.44	.24	.28
GIVES THE STUDENTS INDIVIDUAL HELP	.45	.49	.40	.38
READS THE DIRECTIONS WITH THE STUDENTS	.44	.35		.26
RELATES WHAT HAS ALREADY BEEN LEARNED TO NEW MATERIAL	.43	.50	.22	.27
PREPARES STUDENTS FOR WHAT THEY WILL BE DOING NEXT	.41	.48	.24	.31
SPEAKS WITH EXPRESSION	.38	.44	.28	.23
PROVIDES STUDENTS WITH MATERIALS THEY NEED WHEN THEY NEED THEM	.37			
TAKES TIME TO ANSWER STUDENTS' QUESTION BEFORE A TEST	.37	.55	.22	.29
EXPLAINS SOMETHING AND THEN STOPS SO STUDENTS CAN THINK ABOUT IT		.44	.32	.28

TABLE 1 - CONTINUED

FACTOR 2 - CLEAR TARGET : PERSONALIZING USING MULTIPLE STRATEGIES				
FACTOR 4 - UNCLEAR TARGET: PERSONALIZING USING MULTIPLE STRATEGIES				
EXPLAINS BY TELLING A STORY	.53	.67		
HAS STUDENTS WHO UNDERSTAND HOW TO DO THE WORK BEGIN WHILE HE EXPLAINS IT AGAIN TO OTHERS	.49			
HAS STUDENTS MAKE OUTLINES	.47	.42		
REPEATS FOR STUDENT, IN GROUPS, WHAT HE TAUGHT THE WHOLE CLASS	.45			
HAS STUDENTS WRITE DEFINITIONS MANY TIMES	.43			
USES CONTRACTS FOR GRADING	.43			
HAS STUDENTS WORK PROBLEMS ON THE BOARD INSTEAD OF ASKING THEM ONLY TO TELL THEIR ANSWERS	.40			
TELLS HUMOROUS STORIES WHEN EXPLAINING	.39	.63	.20	
SHOWS MOVIES AND EXPLAINS THEM AFTERWARDS	.38	.49	.20	
STARTS THE LESSON SLOWLY	.38		.21	
EXPLAINS SOMETHING AND THEN STOPS SO STUDENTS CAN THINK ABOUT IT[d]	.38		.32	.28
FACTOR 3 - CLEAR TARGET : TASK ORIENTATION - INFLEXIBLE STYLE				
FACTOR 3 - UNCLEAR TARGET: PROVIDING AND/OR ASSURING STUDENT UNDERSTANDING				
TALKS ONLY ABOUT THINGS RELATED TO THE TOPIC HE IS TEACHING	.60			.20
GIVES THE STUDENT DAILY PRACTICE	.42	.39		
FINISHES TEACHING WHAT HE WANTS TO TEACH WITHOUT STOPPING IN THE MIDDLE	.41			
MAKES STUDENTS DO THINGS RIGHT	.40			
HAS STUDENTS WORK PROBLEMS ON THE BOARD INSTEAD OF ASKING THEM TO TELL THEIR ANSWERS		.42		
REPEATS FOR STUDENTS, IN GROUPS, WHAT HE TAUGHT THE WHOLE CLASS		.40		
TELLS STUDENTS TRICKS FOR REMEMBERING THINGS		.39	.26	.28
STAYS WITH THE TOPIC UNTIL IT IS UNDERSTOOD[d]		.37	.30	.26
EXPLAINS SOMETHING AND THEN STOPS SO STUDENTS CAN THINK ABOUT IT[d]		.37	.32	.28
STARTS THE LESSON SLOWLY		.35	.21	

TABLE 1 - CONTINUED

FACTOR 4 - CLEAR TARGET : VERBAL FLUENCY FACTOR 4 - UNCLEAR TARGET: VERBAL FLUENCY				
SPEAKS GRAMMATICALLY	.51	.61	.24	.23
SPEAKS WITH EXPRESSION[d]	.49	.38	.28	.23
EXPLAINS BY TELLING A STORY	.43			
SUPPORTS THE LESSON WITH SPECIFIC DETAILS[d]	.40	.35	.30	.31
TELLS HUMOROUS STORIES WHEN EXPLAINING	.40		.20	
PRONOUNCES WORDS DISTINCTLY[d]		.67		.27
FINISHES TEACHING WHAT HE WANTS TO TEACH WITHOUT STOPPING IN THE MIDDLE		.50		
WRITES LEGIBLY ON THE BOARD[d]		.50	.24	.28
MAKES STUDENTS DO THINGS RIGHT		.42		
TALKS ONLY ABOUT THINGS RELATED TO THE TOPIC HE IS TEACHING		.40		.20
SUPPORTS WHAT HE TEACHES WITH FACTS FROM THE TEXTBOOK		.37		.25
FACTOR 5 - CLEAR TARGET : ORGANIZING STUDENT WORK FACTOR 5 - UNCLEAR TARGET: ORGANIZING STUDENT WORK				
TELLS STUDENTS TO TAKE NOTES	.79	.74		
HAS STUDENTS MAKE OUTLINES	.35			

[a]Only Form A behaviors that exhibited factor loadings equal or greater than .35 on at least one target-level administration are presented in this table.

[b]Structure coefficients in this column are associated with the discriminant analysis of the first random ordering of behaviors on Form A. Only coefficients equal or greater than .20 are presented in this table.

[c]Strucure coefficients in this column are associated with the second random ordering of behaviors on Form A.

[d]This behavior also loaded on Factor 1.

TABLE 2

FACTOR STRUCTURE AND STRUCTURE COEEFICIENTS

OF SELECTED BEHAVIORS ON FORM B

FACTOR I - CLEAR TARGET: EXPLAINING: PROVIDING FOR STUDENT UNDERSTANDING
FACTOR I - UNCLEAR TARGET: EXPLAINING: PROVIDING FOR STUDENT UNDERSTANDING

BEHAVIORS[a]	FACTOR LOADINGS		STRUCTURE COEFFICIENTS	
	CLEAR	UNCLEAR		
GIVES EXPLANATIONS THAT THE STUDENT UNDERSTANDS	.63	.69	.31[b]	.43[c]
SPEAKS SO THAT ALL THE STUDENTS CAN HEAR	.60		.26	.24
TELLS STUDENTS WHAT HE WANTS THEM TO DO	.59		.22	.23
TAKES TIME WHEN EXPLAINING	.57	.70	.34	.37
TEACHES AT A PACE APPROPRIATE TO THE TOPIC AND THE STUDENTS	.57	.69	.38	.37
GIVES THE STUDENT WORK HE IS ABLE TO DO	.56	.58	.26	.28
ANSWERS STUDENT QUESTIONS	.55	.63	.35	.36
STRESSES DIFFICULT POINTS	.54	.54	.37	.32
EXPLAINS NEW WORDS	.53	.47	.28	.27
SHOWS STUDENTS HOW TO DO THINGS	.52	.45	.30	.29
USES WORDS CORRECTLY	.51		.26	
USES COMMON WORDS	.47	.36		.27
TELLS STUDENTS WHEN ASSIGNMENTS ARE DUE	.47		.21	.22
REVIEWS WORK WITH STUDENTS IN PREPARATION FOR A TEST	.46	.51	.30	.34
MAKES THE STUDENTS AWARE OF STANDARDS AND RULES TO BE FOLLOWED	.46			
TEACHES ONE THING AT A TIME	.42	.50	.21	.30
WRITES IMPORTANT THINGS ON THE BOARD	.42	.39	.21	.26
SHOWS THE STUDENT WHERE HE IS WRONG	.40	.38	.27	.22
GIVES THE STUDENT ENOUGH TIME TO PRACTICE	.39	.51	.34	.29
REPEATS ENOUGH BUT NOT TOO MUCH	.39	.50	.25	.30
SHOWS STUDENTS EXAMPLES OF HOW TO DO CLASSWORK OR HOMEWORK	.37	.38	.31	.36
EXPLAINS THE ASSIGNMENT AND THE MATERIALS TO BE USED SUCH AS DITTOS	.36	.42		.23
MAKES COMPARISONS	.36		.20	
REPEATS SLOWLY		.51	.31	.27
REPEATS DIRECTIONS		.44	.27	
REVIEWS WHAT HAS ALREADY BEEN STUDIED		.42	.31	.24
ASKS QUESTIONS TO FIND OUT IF STUDENTS UNDERSTAND WHAT HE HAS TOLD THEM		.42	.22	.24
GIVES STUDENTS VARIOUS KINDS OF PRACTICE		.38	.27	.21
GOES FROM GENERAL TO THE SPECIFIC		.38	.29	

TABLE - 2 CONTINUED

BEHAVIORS	FACTOR LOADINGS CLEAR	FACTOR LOADINGS UNCLEAR	STRUCTURE COEFFICIENTS CLEAR	STRUCTURE COEFFICIENTS UNCLEAR
FACTOR 2 - CLEAR TARGET : EXPLAINING THROUGH WRITTEN OR VERBAL EXAMPLES				
FACTOR 2 - UNCLEAR TARGET: EXPLAINING THROUGH WRITTEN OR VERBAL EXAMPLES				
WORKS EXAMPLES AND EXPLAINS THEM	.67	.57	.33	.28
GIVES AN EXAMPLE ON THE BOARD OF HOW TO DO SOMETHING	.61	.60	.26	.24
EXPLAINS AND THEN WORKS AN EXAMPLE	.56	.48	.24	.32
WORKS DIFFICULT HOMEWORK PROBLEMS, SELECTED BY STUDENTS, ON THE BOARD	.49	.58	.26	.23
SHOWS STUDENTS EXAMPLES OF HOW TO DO CLASS-WORK OR HOMEWORK	.47	.50	.31	.36
GIVES STUDENTS AN EXAMPLE AND THEN LETS THEM TRY TO DO IT	.44	.55	.21	.24
SHOWS STUDENTS HOW TO DO THINGS	.41	.42	.30	.29
GIVES THE STUDENT ENOUGH TIME TO PRACTICE	.38		.34	.29
GIVES THE STUDENT VARIOUS KINDS OF PRACTICE		.38	.27	.21
FACTOR 3 - CLEAR TARGET : SYNTHESIS AND/OR RELEVANCY				
FACTOR 3 - UNCLEAR TARGET: SYNTHESIS AND/OR RELEVANCY				
RELATES WHAT HE IS TEACHING TO REAL LIFE	.50	.51		.26
MAKES COMPARISONS[d]	.50	.48	.20	
STOPS A FILMSTRIP BEFORE IT IS FINISHED TO EXPLAIN OR DISCUSS IT	.50		.21	.20
SHOWS STUDENTS HOW DIFFERENT SUBJECTS ARE RELATED	.48	.52	.22	.26
TELLS STUDENTS WHY HE THINKS THEY SHOULD LEARN WHAT HE IS TEACHING	.44	.45	.22	.21
USES OVERHEAD PROJECTORS, FILMS, PICTURES, REAL OBJECTS, DIAGRAMS, MAPS, ETC.	.42			
HAS STUDENTS MAKE OUTLINES	.42			
ASKS QUESTIONS TO FIND OUT IF STUDENTS UNDERSTAND WHAT HE HAS TOLD THEM[d]	.40		.22	.24
USES SOME STUDENTS' WORK AS EXAMPLE TO SHOW HOW TO DO SOMETHING	.39	.45		
EXPLAINS THE ASSIGNMENT AND THE MATERIALS[d] TO BE USED SUCH AS DITTOS	.39			.23
GIVES PERSONAL EXAMPLES		.48	.21	.20

TABLE 2 - CONTINUED

BEHAVIORS	FACTOR LOADINGS CLEAR	FACTOR LOADINGS UNCLEAR	STRUCTURE COEFFICIENTS	
FACTOR 4 - CLEAR TARGET : VERBAL REPETITION				
FACTOR 4 - UNCLEAR TARGET: VERBAL FLUENCY				
REPEATS SLOWLY[d]	.48		.31	.27
REPEATS DIRECTIONS[d]	.48		.27	
SAYS A SPELLING WORD MORE THAN ONCE	.41			
REPEATS THE SAME THING MORE THAN ONCE	.36			
SPEAKS SO THAT ALL STUDENTS CAN HEAR[d]		.60	.26	.24
TELL STUDENTS WHAT HE WANTS THEM TO DO[d]		.50	.22	.23
USES WORDS CORRECTLY[d]		.56	.26	
TELLS STUDENTS WHEN ASSIGNMENTS ARE DUE[d]		.38	.21	.22
FACTOR 5 - CLEAR TARGET : UNINTERPRETABLE				
FACTOR 5 - UNCLEAR TARGET: UNINTERPRETABLE				
GIVES FREQUENT TESTS OR QUIZZES	.63			
SUPPORTS WHAT HE TEACHES WITH FACTS FROM THE TEXTBOOK	.39	.35	.20	.19
STOPS A FILMSTRIP BEFORE IT IS FINISHED TO EXPLAIN OR DISCUSS IT		.54	.21	.20
USES OVERHEAD PROJECTORS, FILMS, PICTURES, REAL OBJECTS, DIAGRAMS, MAPS, ETC.		.46		
HAS STUDENTS MAKE OUTLINES		.42		
GIVES A QUIZ ON WHAT WAS STUDIED THE DAY BEFORE		.35		

[a]Only Form B behaviors that exhibited factor loadings equal or greater than .35 on at least one target-level administration are presented in this table.

[b]Structure coefficients in this column are associated with the discriminant analysis of the first random ordering of behaviors on Form B

[c]Structure coefficients in this column are associated with the second random ordering of behaviors on Form B.

[d]This behavior also loaded on Factor 1.